



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON PROBABILITY

Sharp Asymptotics and Trivialization Phase of the (p,k) Spiked Tensor Model

By

Dr. Zhehua LI

Northwestern University

Abstract

In this talk we focus on a class of disorder systems characterized by the spherical pure p -spin Hamiltonian in the presence of a nonlinear signal given by a deterministic polynomial of degree k . (We will call them the (p,k) spiked tensor model). It is known recently that these systems exhibit phase transitions in terms of the topology of their energy landscape. We characterize the mean number of deep minima near the bottom of the landscape through the Kac-Rice formula. When the strength of the signal is beyond a conjectured trivialization threshold, the mean number of deep minima is asymptotically finite and we derive an explicit formula for the limiting ground states and the limiting ground state energy by combining techniques in spin glass theory and random matrices. This talk is based on joint work with Antonio Auffinger and Gerard Ben Arous.

Date : 29 July 2021 (Thursday)

Time : 10:00am

Zoom Meeting : <https://hkust.zoom.us/j/92044403326> (Passcode: 900263)

All are Welcome!